

S/135/61/000/003/009/014
A006/A001

Manufacturing Electrodes for Welding Aluminum by Pressure Method

of the weld. The slag is uniformly distributed over the weld. OZA-1 electrodes show high fusion characteristics: mean coefficient of building up $\alpha_f = 6.3$ g/amp · hour; fusion coefficient: $a_f = 6.9$ g/amp · hour; coefficient of loss $\psi = 20\%$. Angular, Tee and overlap joints may be welded with OZA-1 electrodes in both lower position and on a vertical plane. OZA-2 electrodes assure high quality welding-up of defects. Tests as to the strength of joints, hydrogen content of the weld metal and corrosion resistance of the welds, yielded satisfactory results. The electrodes are recommended for welding aluminum structures, welding-up of defects, and repairs. There are 3 tables and 3 figures

ASSOCIATION: Moskovskiy opytный svarochnyy zavod (Moscow Experimental Welding Plant)

Card 3/3

SHASHKOV, A.N., kand.tekhn.nauk; BERG, T.V., inzh.

Consultations in answer to letters from readers. Svar.proizv.
no.1:48 Ja '63. (MIRA 16:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov (for Shashkov). 2. Moskovskiy opytnyy svarochnyy zavod (for Berg).
(Gas welding and cutting)

YACHENSKAYA, G.V.; VAGANOV, I.M.; BIRSHKIN, Ye.G.; BERG, T.V.

Electrodes for welding and hot-dipping. Publ. tech.-econ. Inform.
Gos. nauch.-issl. inst. mash. i tekhn. Inform. 17 no.8:23-26 Ag '64.
(MIRA 17:11)

BERG, V.A.

DECEASED

c1961

See III

VICTIM, ~~SECURITY~~

11707

S/044/62/000/010/023/042
B166/B102

16.6500

AUTHOR: Berg, V. A.

TITLE: Solution of the heat conduction equation by the finite difference method (one-dimensional problem, isotropic body, boundary conditions of the third kind)

PERIODICAL: Referativnyy zhurnal. Matematika, no. 10, 1962, 27, abstract 10V135 (Inform. sb. Vses. gos. proyekt. in-t Gidroenergo-proyekt, no. 21, 1961, 59 - 62)

TEXT: An analysis is given of Schmidt's graphical solution of the problem of constructing the temperature field in a homogeneous body with boundary conditions of the third kind. It is demonstrated that Schmidt's solution is physically incorrect because it assumes in its construction that the outer of the zones into which the body is divided in order that the finite difference method may be applicable, are equal to half the thickness of the middle zones. A new solution using the finite difference method is given. In this case the calculation equation has the form:

Card 1/2

Solution of the heat conduction...

S/044/62/000/010/023/042
B166/B102

$$t_{n,\tau+1} = \frac{t_{n+1,\tau} + t_{n-1,\tau}}{2} .$$

The problem of the cooling of an unlimited plate is examined as an example. It is noted that the finite difference method gives sufficient accuracy for practical calculations. Bibliography 8 titles. [Abstracter's note: Complete translation.]

Card 2/2

BERG, V. A.

PA 245T92

USSR/Meteorology - Thermal Regime
of Rivers

Nov 52

"Review of Book, 'Thermal Regime of USSR Rivers'
by Ye. M. Sokolov, Candidate of Geographical
Sciences," V. A. Berg, Cand Tech Sci, Hydro-
meteorological Inst, Leningrad

"Meteorol i Gidrol" No 11, pp 60-63

Subject book is one of first attempts to
generalize the thermal regime of the rivers of
the USSR. States that book has no equal in
world literature.

245T92

DEMO, V. A.

PA 38/49T55

USSR/Engineering

Dams

Insulating Materials

Jan 49

"Types of Hydrotechnical Constructions," V. A. Berg, Eng., 4 pp

"Gidrotekh Stroi" No 1

Discusses theory and areas of application of solid gravity, hollow gravity, and arch dams, with some examples of different-type constructions. Favors

38/49T55

USSR/Engineering (Contd)

Jan 49

use of arch dams wherever possible to save concrete. Discusses use of insulating materials against water seepage for arch dams.

38/49T55

BERG, V.A., kandidat tekhnicheskikh nauk.

Measuring the temperature of the tailrace water of hydrotechnical
structures. Gidr. stroi 23 no.7:32-35 '54. (MLRA 7:11)
(Hydraulic engineering) (Rivers--Temperature)

BERG, V.A.

Komponovka priplotinnykh gidroelektricheskikh ustanovok nizkogo i srednego napora (Placement of low and medium pressure hydroelectric installations at dams). Moskva, Gosenergoizdat, 1953. 72 p.

SO: Monthly List of Russian Accessions, Vol 7, No 9, Dec 1954

14-57-6-12296

Translation from: Referativnyi zhurnal, Geografiya, 1957, Nr 6,
p 83 (USSR)

AUTHOR: Bong, V. A.

TITLE: Hydrodynamic Condition of Stable and Flowing Ice
Formation in Running Water (O gidrodinamicheskikh
usloviyakh ledostava i ledotranszita na vodotokakh)

PERIODICAL: Tr. Leningr. gidrometeorol. in-ta, 1956, Nr 4,
pp 107-141

ABSTRACT: The author examines a straight section of channel
not acted upon by wind. He takes into consideration
the effect of channel curvature and wind, and com-
pares the process of stable ice formation with that
on a straight channel.

Card 1/1

SOV/124-57-8-9114

Translation from: Referativnyy zhurnal. Mekhanika, 1957. Nr 8, p 77 (USSR)

AUTHOR: Berg, V. A.

TITLE: On the Construction of the Temperature Field in a Snow-and-Ice
Cover (O postroyenii temperaturnogo polya v snego-ledyanom
pokrove)

PERIODICAL Tr. Leningr. gidrometeorol. in-ta, 1956. Nr 5-6 pp 59-67

ABSTRACT: A finite-difference numerical method for the construction of the
transient temperature field in a stratified medium is presented for
the case when there are no heat sources and sinks along the inter-
faces between the strata and when the aggregate state in the strata
is not subject to change.

K. K. Vasilevskiy

Card 1/1

BERG, V.A.

"Atlas of typical plans for stream measurement installations;" part
1. Reviewed by V.A. Berg. Meteor. i gidrol. no.11 '52-54 N '56.
(Stream measurements) (MLRA 10:1)

BERG, V. A.

BERG, V.A., kand.tekhn.nauk.

Calculating the distribution of anchor ice flow according to
the depth of the stream. Gidr.stroi. 26 no.9:46 S '57.

(MIRA 10:10)

(Dams) (Ice)

BERG, Vadim Andreyevich; BYDIN, F.I., otv. red.; SHATILINA, M.K.,
red.; BRAYNINA, M.I., tekhn. red.

[Principles of hydraulic engineering] Osnovy gidrotekhniki.
Leningrad, Gidrometeoizdat, 1963. 472 p. (MIRA 16:5)
(Hydraulic engineering)

ZAYTSEV, Yuriy Ivanovich; VASIL'YEV, V.K., doktor tekhn. nauk,
prof. retsenzent; IFATENKO, A.Ya., kand. tekhn. nauk
dots., retsenzent; BERG, V.E., inzh., retsenzent;
ZAKHAROV, A.M., kand. tekhn. nauk, dots., retsenzent;
KHRYAPCHENKOV, A.S., kand. tekhn. nauk, dots., retsenzent;
MOISEYEV, A.A., nauchn. red.; SHAURAK, Ye.N., red.

[Fundamentals of the design of marine steam turbines] Os-
novy proektirovaniya sudovykh parovykh turboagregatov. Le-
ningrad, Sudostroenie, 1965. 495 p. (MIRA 18:12)

DEK, M. A.
 ALEKSANDROV, A.G., dots; ARONOVICH, I.S., inzh.; BABIKOV, M.A., doktor tekhn.nauk; BATUSOV, S.V., kand.tekhn.nauk; BEL'KIND, L.D., doktor tekhn.nauk; VENIKOV, V.A., doktor tekhn.nauk; VESELOVSKIY, O.N., kand.tekhn.nauk; GOLOVAN, A.T., doktor tekhn.nauk; GOLUSTSOVA, V.A., doktor tekhn.nauk; GREYNER, L.K., inzh.; GRUDINSKIY, P.G., prof.; GUSEV, S.A., inzh.; DMOKHOVSKAYA, L.F., kand.tekhn.nauk; DROZDOV, N.G., doktor tekhn.nauk; IVANOV, A.P., doktor tekhn.nauk [deceased]; KAGANOV, I.L., doktor tekhn.nauk; KERBER, L.L., inzh.; KOCHENOVA, A.I., kand.tekhn.nauk; LARIONOV, A.N.; MINOV, D.E., doktor tekhn.nauk; METUSHIL, A.V., doktor tekhn.nauk; NIKULIN, N.V., kand.tekhn.nauk; NILINDER, R.A., prof.; PANTYUSHIN, V.S., prof.; PASYNKOV, V.V., doktor tekhn.nauk; PETROV, G.N., doktor tekhn.nauk; POLIVANOV, K.M., doktor tekhn.nauk; PRIVEZENTSEV, V.A., doktor tekhn.nauk; RADUNSKIY, L.D., inzh.; RENNE, V.T., doktor tekhn.nauk; SVENCHANSKIY, A.D., doktor tekhn.nauk; SOLOV'YEV, I.I., doktor tekhn.nauk; STUPEL' F.A., kand.tekhn.nauk; TALITSKIY, A.V., prof.; TEMNIKOV, F.Ye., kand.tekhn.nauk; FEDOROV, L.I., inzh.; FEDOSEYEV, A.M., doktor tekhn.nauk; KHOLYAVSKIY, G.B., inzh.; CHECHET, Yu.S., doktor tekhn.nauk; SHNEY-BERG, Ya.A., kand.tekhn.nauk; SHUMILOVSKIY, N.N., doktor tekhn.nauk; APTIK, I.B., red.; MEDVEDOV, L.Ya., tekhn.red.

[The history of power engineering in the U.S.S.R. in three volumes]
 Istoriia energeticheskoi tekhniki SSSR v trekh tomakh. Moskva, Gos. energ. izd-vo.

(Continued on next card)

ALEKSANDROV, A.G.--(continued) Card 2.

Vol.2. [Electric engineering] Elektrotehnika. Avtorskii kollektiv
toma: Aleksandrov i dr. 1957. 727 p. (MIRA 11:2)

1. Moscow. Moskovskiy energeticheskiy institut. 2. Chlen-korrespondent AN SSSR (for Larionov)
(Electric engineering)

SPITKOVNIK, D. M.; BERG, YE. I., MESTOVA, M. M.

Polymers and Polymerization

Effect of stresses on the temperature of vitrification of polymers. Anal. A. Chem. U.S.S.R. No. 5, 1958

9. Monthly List of Russian Accessions, Library of Congress, December 1958, Uncl.
2

BERG, E. V.

OSU-A 350

Urovenny Rezhim Onezhskogo Ozera: Level Con-
ditions of Lake Onega

Issledovaniya Ozer SSSR: Gosudarstvennyy
Gidrologicheskiy Institut, No. 5, 1933, pp. 7-
103

Library of Congress, GB1707-ALL4

Abstract in German

A detailed study of the variation in the level
of Lake Onega carried out by the members of an
expedition to the lake.

93

BERG, E. V.

OSU-A 349

Vskrytiye i Zamerzaniye Onezhskogo Oзера: Ice
Breaking and Freezing of Lake Onega.

Issledovaniya Ozer SSSR: Gosudarstvenny Gidro-
logicheskiy Institut, No. 5, 1933, pp. 103-120

Library of Congress, GB 1707-A114

Abstract in German

Part of the study of the lake by a special ex-
pedition. See preceding and following cards.

94

BERG, E. V.

BERG, E. V. and VOLIN, A. V., "Solid Flow and Speed of Erosion," No 2, pp 95-96.
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953

1. BERG, YE. V.

2. USSR (600)

Plotting and Extrapolating the Water Discharge Curve.

9. Meteorologiya i Gidrologiya, No. 3, 1949;
Report U-2551, 30 Oct. 52

BERG, Ye. V.

Data on spring floods in the Volga and Oka Rivers in the region of
Gorkiy during the eighteenth and nineteenth centuries. Uch.zap.Len.
un.no.199:3-64 '55. (MLRA 9:7)
(Volga River--Floods) (Oka River--Floods)

BERG, Ye.V.

Spring flood level of the Volga River at Gorkiy. Vest.Len.un.11 no.6:
116-127 '56. (Volga River--Floods) (MLRA 9:7)

10

Effect of hydrophilic colloids on the rate of solution of metal oxides in acids. Yu. N. Berg and M. N. Vishnya-kov. *Colloid J.* (U. S. S. R.) 6, 71-8 (1940).—Soln. of CuO is retarded by colloids. In *N* HCl this effect de-creased in the series gelatin > agar > starch > gum arabic, and in *N* H₂SO₄ in the series gelatin > gum arabic > agar > starch. The effect is stronger in HCl than in H₂SO₄. The effect on the rate of soln. of Fe(OH)₃ in *N* HCl is small; it decreases in the order gelatin > starch > agar > gum arabic. It increases with the amt. of colloid added and is presumably caused by adsorption of colloid on oxides. No connection with the "gold number" of the colloid can be detected.

J. J. Bikerman

1ST AND 2ND COPIES										3RD AND 4TH COPIES									
10 ca Catalytic decomposition of acetals. L. I. Barsukova, Yu. N. Pety, M. N. Vishnyakov, M. M. Koton, and I. A. Chernov. <i>J. Gen. Chem.</i> (U.S.S.R.) 11, 1218-20(1941). Acetals of CH_3O, AcH and iso-PrCHO were found to be stable to purely thermal decompn. Catalytic decompn. over Cu or Ni begins at $200-250^\circ$, the resulting mixt. contains mainly the aldehyde and ROH as well as H and CO. G. M. Koudapoff.																			
ASD-31A METALLURGICAL LITERATURE CLASSIFICATION																			
1ST AND 2ND COPIES										3RD AND 4TH COPIES									
1ST AND 2ND COPIES										3RD AND 4TH COPIES									

PROCEDURE AND EXPERIMENTAL DATA

2

Hydro decomposition of diethylmalonate. Yu. N. Berg, I. N. Vukobratov (Leningrad Pedagog. Inst. Chem. (U.S.S.R.), 17, 1019-22 (1947) (in Russian).)

best catalyst $\text{Mg-Cl}(\text{OEt})$, is stable in glass vessels at 350°; catalytic decoupling is significant at 200°; were conducted between 200° and 250° with catalyst columns of 12-16 cm, rate of flow 15 ml/hr. (1) pure Cu catalysts (CuO reduced in H_2), max. decoupling MeCHO and EtOH , in the gas unsatd. hydrocarbon; example of data, catalyst 21 g, 11.5 cm, (OEt), 13 ml, condensate 10.4 g (MeCHO 30.5, 0.82, AcOEt 4.5, EtOH 4.4, unsatd. 8.5, un- at 10.4°), gas 1800 ml (CO, 7.3, C_2H_6 , 62, CO 2.3°); with further rising temp., the activity of catalyst decreases. EtOH, AcOEt, AcOH, and C_2H_6 , in volume MeCHO , unsatd. hydrocarbons, and H_2 , the main product in the condensate is AcOEt, 2-5, 15 ml, $\text{Mg-Cl}(\text{OEt})$, gave 7.5 g, condensate 4.2, HO 30, AcOH 2.3, AcOEt 41, EtOH 9, unsatd. 4.2, and 20%, gas 2800 ml (CO, 6, C_2H_6 , 48, CO 1.2, 2°); at 180°, condensate 6.0 g (15, 1.2, 22, 12, 9.2, 6°), gas 4100 ml (7.5, 27.5, 0.8, 62.2°). (3) With the Cu catalyst acts in the same direction as addition. 17.5 g, 15 cm, catalyst Cu, 6, 15 ml, (OEt), at 200° condensate 9.8 g (20, 0.7, 15.4, 21.3°), gas 1900 ml (6.4, 4.7, 1.7, 44°); at 230°, catalyst 0.4, 10.2, 16.2, 14.2, 30%, 3100 ml, 5, 2.1, 62°). (4) With Al_2O_3 catalysts, the con- up into 2 layers, an upper layer consisting of unsatd. compounds, little MeCHO , and AcOH, and a lower layer (27 vol. % at 230° and H_2 almost totally absent. The degree of decoupling is high (82°); at 230°, upper layer 9 g, HO 2.5, AcOH 0.2, AcOEt 2, EtOH 7.1, H_2O 0.5, 34.2, unchanged 18.7°), gas 825 ml (8, 16, 9, 0°), per MeCHO 12.5, AcOH 0.75, AcOEt 6.2, EtOH unsatd. 0.6°. (5) With Ni catalysts (on binder decoupling is relatively low, the amt. of gas high, little H_2 and unsatd. hydrocarbons, mainly CO and by unsatd. compounds. EtOH predominates. at 250° condensate 10.2 g (MeCHO 1.3, AcOH AcOEt 0.2, H_2O 0.4, EtOH 22.2, unsatd. 10.2, un- at 55.2°), gas 1560 ml (CO, 2.8, unsatd. 3.8, CO 16, C_2H_6 , 27°); at 330°, 4.5 g (2.6, 0.06, 4, 4%, 12, 34.5°, 7000 ml (12, 4, 26, 26, 26°) in covered length of the catalyst column results in

higher degree of decarboxylation, increased yields of MeCHO, EtOH, and particularly CH₄, decreased unsat. compds. in the condensate and H₂ in the gas. e.g., at 250° C, catalyst 10.5 g., 12.5 cm., condensate 11.5 g. (MeCHO 22, AcOH 0.8, AcOEt 4.6, EtOH 29.9, unatd. 14, H₂O 0.9, unchanged 21.9%); gas 620 ml (CO, 2, C₂H₄ 31.4, CO₂ 0.6, H₂ 15%); catalyst 48 g., 25 cm., 10.2 g. (20.4, 1.3, 10.3, 22, 4.8, 0.5, 15.3%); 11 g. (2, 0.4, 13.2, 5%); (7) Reduced rate of flow has the same effect as increased height of the catalyst column: e.g., Co catalyst 20 g., 11.5 cm., at 250°, rate of flow 7.5 ml./hr., condensate 11.5 g. (MeCHO 22.2, AcOH 0.32, AcOEt 8.1, EtOH 28, unatd. 18.5, unchanged 27%); gas 1070 ml. (CO, 3.4, C₂H₄ 41, CO₂ 0.2, H₂ 65%); 20 ml./hr., 11.8 g. (14.2, 0.2, 6.5, 13.3, 19, 47%); 1013 ml. (2.5, 34, 0.4, 63%); (8) is a stream of H₂, the degree of decarboxylation of MeCH(OEt)₂ is higher, the yields of AcOEt and EtOH are increased, the amts. of MeCHO and of unatd. compds. in both condensate and gas are decreased; unatd. hydrocarbons appear in the gas. (9) In contrast to MeCH(OEt)₂, decarboxylation of EtOH over Cu + Zr 0.9 and over Ni catalyst yields no unatd. compds. Over Ni at 250° 15 ml. EtOH gave 10.0 g. condensate (MeCHO 2, AcOH 0, AcOEt 0.44, unatd. 0.3%), gas 2650 ml. (CO, 0.4, C₂H₄ 0, CO₂ 28, H₂ 40, C₂H₆ 1.26%); at 250° 2.5 g. (1.8, 0, 0, 0.087%); 19, 450 ml. (0.1, 0.2, 26, 40, 30%); over Cu + Zr 0.9 at 250° 10.5 g. (14.2, 0.32, 10.3, 0.4, 63%); 2000 ml. (0, 0.9, 0.4, 94%); at 250° 2.0 g. (22.5, 2.1, 22.5, 1.4%); 430 ml. (1.9, 0.8, 0.4, 97%); (10) In the decarboxylation of MeCH(OEt)₂ over Cu + Zr 0.9, MeCHO predominates in the condensate, the amt. of gas is low, while unatd. hydrocarbons predominate; e.g., at 250° 11.5 g. (MeCHO 8.7, AcOH 0, AcOEt 0, unchanged 89%); 465 ml. (CO, 4, unatd. 0.8, CO₂ 1.2, H₂ 13%); at 250° 2 g. (12.9, 0.88, 2.8, 62.4%); 489 ml. (7.3, 7.1, 3, 10%); In a stream of H₂, a considerable amt. of MeCH₂ is formed and the amt. of unatd. compds. in both condensate and gas fall: at 250° 11 g. (MeCHO 12.0, AcOH 0.1, AcOEt 4.4, EtOH 19, unchanged 27%); gas (CO, 1.2, unatd. 7.3, CO 0.7%); (11) On all catalysts, the primary reaction in the decarboxylation of MeCH(OEt)₂ is CH₃CHOEt + EtOH; part of this CH₃CHOEt escapes further decarboxylation, the more of it the shorter the time of contact; the remainder undergoes decarboxylation according to CH₃CHOEt → CH₃CHO + MeCHO. The further fate of these products varies with the nature of the catalyst: the EtOH formed in the primary step is dehydrogenated to MeCHO on a Cu catalyst; on Cu + Zr 0.9 and Cu + U 0.9, it yields AcOEt; on Al₂O₃, it is mainly dehydrated to CH₂. The MeCHO formed from CH₃CHOEt gives unatd. compds. on Al₂O₃, on Ni it is split into CH₄ and CO. The small amt. of EtOH observed can originate either in a hydrolysis of CH₃CHOEt or in a side reaction MeCH(OEt)₂ → EtOH + MeCHO, as indicated by Meerwein (14) and Schmidt, C.A. 19, 2381). (12) Inasmuch as catalytic decarboxylation of EtOH yields no CH₄, but that of MeCH(OEt)₂ does, the action of Dalgov and Kelen (C.A. 21, 2170) for the catalytic decarboxylation of EtOH involving successive formation of MeCH(OEt)₂ with the subsequent reaction MeCH(OEt)₂ → MeCH(OEt)OH + CH₄ and MeCH(OEt)OH → AcOEt + H₂ is invalidated. Actually, CH₄ is formed from the ethylidene group, not from the EtO group.

IVANOV, I.I.; BERG, Yu.N.; LEBEDEVA, N.A.

Changes caused by high pressure in certain properties of myosin,
actomyosin and actin. Biokhimiia 25 no. 3:505-510 My-Je '60.
(MIRA 14:4)

1. Chair of Biochemistry, the Pediatric Medical Institute, Leningrad.
(MYOSIN)

BERG, YU. N., LEBEDEVA, N. A., LOPATINA, N. I., MIROVICH, N. I.,
TURACHINSKIY, S. Y., YURYEV, V. A., ZHAKHOVA, Z. N., and IVANOV, I. I.
(USSR)

"Proteins of various Muscle Myofibrils and the Problem of Tone."

Report presented at the 5th International Biochemistry Congress,
Moscow, 10-16 Aug 1961

BERG, Yu.N.; LEBEDEVA, N.A.; MARKINA, Ye.A.; IVANOV, I.I.

Effect of high pressure on some myosin properties. Biokhimiya 30
no.2:277-281 Nov-Apr '65. (MIRA 18:7)

1. Kafedra biokhimii Radiatricheskogo meditsinskogo instituta,
Leningrad.

SAMOKHVALOV, A.V.; BERG, Yu.N.; LIVSHIN, A.M.; MARKINA, Ye.A. [Markina, Ye.A.]; KRYMSKAYA, B.M. [Kryms'ka, B.M.]

Fractional composition of water soluble neuroglia proteins.
Ukr. biokhim. zhur. 37 no.4:510-521 '65. (MIRA 18:9)

1. Kafedra biokhimii Leningradskogo pediatricheskogo meditsinskogo instituta.

BEFCA, A I

Radiolyubitelskiye Knostruktsyy; Ukazatel Opisanii (Amateur Radio
Designs; Descriptive Guide) Moskva, Gosenergoizdat, 1953.

119 p. illus. (Massovaya Radichbiblioteka, Vypusk 187)

N/5
744.714 (So)
•449

BERGA S. E.

79-2-29/64

AUTHORS: Romadan, I. A. , Berga, S. E.

TITLE: Alkylation of Diphenyl With Alcohol in the Presence of a $\text{BF}_3 \cdot \text{H}_2\text{PO}_4$ Catalyst (Alkilirovaniye difenila spirtami v prisutstvii katalizatora $\text{BF}_3 \cdot \text{H}_2\text{PC}_4$)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 2, pp. 413 -417 (USSR)

ABSTRACT: In the present work the authors investigated the reactions between diphenyl and isoamyl-, isobutyl-, isopropyl, n.-propyl- and n.-butyl-alcohols in the presence of $\text{BF}_3 \cdot \text{H}_2\text{PO}_4$. They wanted to determine the controlling action of an acid catalyst such as BF_3 . At the same time they wanted to determine the possibility of an isomerization of the secondary into the tertiary radical, when a strong electrophile reagent is present. They again tried to confirm the assumption on the mechanism of the alkylation with alcohols according to structure. Kenna and Sova (reference 11), Pres and Lund (reference 12) expressed their opinions on the alkylation mechanism with alcohols in the presence of BF_3 . Later other authors (references 13 and 14) also tried to explain the reaction mechanism. But concrete assumptions on the course of the reaction according to the structure of the alcohol were apparently not expressed. In the observation of the alkylation reaction of naphthalene (references 15

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79-2-29/64

Alkylation of Diphenyl With Alcohol in the Presence of a $\text{BF}_3 \cdot \text{H}_3\text{PO}_4$ Catalyst

and 16) and diphenyl (reference 10) with normal and with isoalcohols in the presence of BF_3 it was possible to establish some assumptions on the alkylation mechanism which are based on the following facts: 1) With normal alcohols alkylnaphthalenes and diphenyls only form with normal radicals. 2) The products of olephine polymerization are absent in the alkylation with normal alcohols. 3) With normal alcohols the reaction takes place 3,4 times slower than with isoalcohols. 4) In the alkylation with isobutyl- and isoamyl-alcohols, alkylnaphthalene-diphenyls containing tertiary radicals form. 5) In the reaction with alcohols with an isostructure dimers and trimers of the olephines are always contained in the mixture of products. 6) With isoalcohols the reaction is terminated within 1 - 2 hours. These observations make assume that with normal alcohols a condensation reaction takes place, whereas with alcohols of an isostructure which split off water more easily, the alkylation reaction takes place with intermediate olephines. In the reaction with the catalyst $\text{BF}_3 \cdot \text{H}_3\text{PO}_4$ equal facts as in the presence of only BF_3 are observed: with normal alcohols p-m.-alkyldiphenyls were obtained and with isopropyl alcohol, p-isopropyldiphenyl; with isobutyl- and isoamyl-alcohols p-tertiary-butyl- and p-tertiary-amyl-diphenyls - crystalline substances formed. Beside the monoalkyldiphenyls the authors obtained dialkyldiphenyls with

Card 2/4

Alkylation of Diphenyl With Alcohol in the Presence of a $\text{BF}_3 \cdot \text{H}_3\text{PO}_4$ Catalyst ^{79-2-29/64}

radicals in the p,p'-position. Their yield does not exceed 3 - 14 %. Polymers of isobutylene and isoamylene were produced and investigated. Some characteristics of alkylidiphenyls are given in the table. Conclusions: 1) It is assumed that on heating of diphenyl with normal alcohols a condensation reaction takes place. Therefore only substances with normal radicals are produced. 2) With alcohols of an isostructure the main reaction is directed to the alkylation with intermediate olefines as a consequence of which alkylidiphenyls and alkylidiphenyls containing tertiary radicals form. 3) In the alkylation of diphenyl with alcohols in the presence of $\text{BF}_3 \cdot \text{H}_3\text{PO}_4$ 3 mol alcohol on 1 mol of hydrocarbon are required. But in the alkylation with molecular alcohol compounds with BF_3 1,5 mol are sufficient. 4) In the alkylation of diphenyl with molecular compounds the yield of alkylidiphenyl amounts to 80 - 98 %. In a reaction with mixed catalyst the yield, however, does not exceed 65 %, although the duration of heating is about 2 times longer. There are 1 table, and 17 references, 7 of which are Slavic.

Card 3/4

Alkylation of Diphenyl With Alcohol in the Presence of a $\text{BF}_3 \cdot \text{H}_2\text{PO}_4$ Catalyst ^{79-2-29/64}

ASSOCIATION: State University, Latvia
(Latviyskiy gosudarstvennyy universitet)

SUBMITTED: January 26, 1957

AVAILABLE: Library of Congress

Card 4/4

AREN, A. [Arens, A.]; BERGA, I.Ya.; VANAG, G.Ya. [Vanags, G.]

N-aminoacetyl derivatives of 2-amino-2-phenyl-1,3-indandiones.
Zhur. ob. khim. 34 no.10:3227-3230 0 '64.

(MIRA 17:11)

1. Rîzhskiy politekhnicheskii institut.

"Diagonal sections of a quaternary reciprocal system consisting of fluorides, chlorides and chromates of sodium and potassium". Rassonskaia, I. S. and Bergman, A. G. (p. 14)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii). 1953, Volume 23, No. 1.

BULGARIA

V. BERGANINI and L. RAVIZZA, Department of Neurology (Head Prof D. BOASSI) University of Torino, Italy.

"Modern Electromyography (Tokizane Method)."

Sofia, Nevrologiya i Psikhiatriya, Vol 2, No 1, 1963; pp 36-47.

Abstract [English summary modified]: Method of neurophysiologic study developed by the Japanese Tokizane and based on repeated electromyographic records of individual muscles. When properly diagrammed these permit differentiation between 'phasic' and 'tonic' movements. Authors studied in this manner 30 patients, making 542 records including of changes in function following neurosurgical treatment for parkinsonism. Eight graphs, 48 Western & Japanese references.

1/1

Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1974
Biological Chemistry

The influence of pectin on the coagulation of blood.
Jelka Bergant, Vojislav Djinovski, Bojan Držaj (Univ.
Ljubljana, Yugoslavia). *Kem. Zbornik* 1951, 25:9.—
The influence of pectin and other substances on the coagu-
lation of blood has been studied. The following conclusions
were reached: The pectin preparations had no influence on the
coagulation of blood. The products of the hydrolysis of
pectin shorten the coagulation time by 21.8%; however,
the galacturonic acid lactone which is formed has no effect.
The Ba salt of 1-methylgalacturonic acid decreases the coagu-
lation time by 31% and digalacturonic acid increases it by
51%. The dimethyl ester of 1-methylgalacturonic acid
decreases the time by 35%.
J. K. Bar Leach

ACC NR: AR6012312

SOURCE CODE: UR/0274/65/000/010/V004/V004

AUTHOR: Vasil'yeva, M. G.; Berganov, I. R.

TITLE: Redundancy in the long-distance equipment

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 10V20

REF SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 22, 1964, 152-158

TOPIC TAGS: system reliability, carrier current communication, communication equipment

ABSTRACT: Two reserving methods -- hot and cold -- are considered for the most important units of carrier-current communication equipment. The hot-reserve method largely used in group amplifiers has the following shortcomings: (1) the average time of operation of the equipment is shorter than the sum of possible average times of operation of each amplifier; (2) energy used for maintaining the reserve amplifier under operating conditions; (3) equal tube wear of the main and reserve amplifiers. The cold automatically switched reserve is free from the above shortcomings. The principal circuit of a monitoring-and-switching device is presented. The nonlinearity coefficient or the transmission level is recommended as a varying parameter which predicts the amplifier failure. Both reserving methods are compared by their mean times between failures. It is pointed out that the efficiency of the cold reserve is equal to 1.4 and 2 with an allowance for restoration. It is claimed

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UDC: 621.395.44.019.3

L 33397-66

ACC NR: AR6012312

that the cold reserve with the monitoring-and-switching devices increases the mean time between failures of the amplifier equipment and enhances the reliability of the entire channel. Four figures. Bibliography of 2 titles. D. B. [Translation of abstract] 25

SUB CODE: 17, 09

Card 2/2

BERGANT, Polde

BERGANT, Polde

Indication and shaping of clasps. Zobozdrav. vest., Ljubljana
8 no.6:220-225 1953.

1. Referat na strokovnem sestanku Društva zobozdravstvenikov
delavcev Slovenije junija 1953.

(DENTAL PROSTHESIS

*clasps, classif. & shaping)

BARGANT, Polde, zobosdravnik

How to make clasps. Zobosdrav. vest., Ljubljana 9 no.3:87-91 1954.
(CROWN AND BRIDGEWORK
*clasps, prep.)

BERGANT, Polde, zobotehnik

A new method of making skeleton prostheses. Zobozdrav.vest.
Ljubljana 10 no.3-4:117-120 1955.

(DENTAL PROTHESIS.

skeleton prosth.,new technic (S1)

BERGANT, Polde, zobotehnik

Reinforcement of dental prosthesis with lingual bars. Zobozdrav.
vest. Ljubljana 10 no.3-4:120-125 1955.

(DENTAL PROSTHESIS, PARTIAL

reinforcement with sublingual & perilingual bars (Sl)

KVEDARAS, A., red.; BASALYKAS, A., red.; BERGAS, V., red.;
MALDZIUNAITE, S., red.; PETRAUSKAS, V., red.; SIBUTIS, A.,
red.; ZIEMYTE, E., red.; HANCEVICIUS, P., tekhn. red.

[Problems of the development of the lower Neman River; transac-
tions] Nemuno zemupio sutvarkymo Klausimai; [pranesimai]. Vilnius,
Valstybine politines ir mokslines literaturos leidykla, 1961.
177 p. (MIRA 15:5)

1. Konferencija Nemuno zemupio sutvarkymo ir apsaugos klausimais,
Vilnius, 1960.

(Neman River)

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and Their H.
Application. Synthetic and Natural Medicinal Substances. Galelicals and Medicinal Forms.

Abs Jour : Ref Zhur - Khimiya, No 10, 1959, 36024.
Author : Bergauer, J., Jindra, L.
Inst : --
Title : A Simplified Method of Preparing Linimentum Saponato-camphoratum, According to PhDs2.
Orig Pub : Farmacia (Ceskosl.), 1957, 26, No 10, 300-304.
Abstract : No abstract.

Card 1/1

11-11

BERGAUZ, L.A.

Transfer of workers and employees to a seven-hour work day. Stal'16
no.11:1026-1031 N '56. (MLRA 10:1)

1. Ministerstvo chernoy metallurgii SSSR,
(Metallurgical plants) (Shift systems)

GURVICH, Mikhail Abramovich; IOFFE, Zinoviy Moiseyevich; OSMOLOVSKIY, Valentin Vasil'yevich; BERGAUZ, L.A., red.; BRUSHTKYN, A.I., red.izd-va; MIKHAYLOVA, V.V., tekhn.red.

[Economics, organization and planning in enterprises of the mining industry; collection of examples and problems] Ekonomika, organizatsiia i planirovanie predpriatii gornorudnoi promyshlennosti; sbornik primerov i zadach. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1958. 232 p. (MIRA 12:4)
(Mining industry and finance)

SLOBODENYUK, Vasilii Prokof'yevich; BERGAUZ, L.A., red.; SMOLDYREV, A.Ye.,
red.izd-va; LOMILINA, L.N., tekhn.red.

[Technical norms for mining operations] Tekhnicheskoe normi-
rovanie gornyykh rabot na predpriyatiyakh tsvetnoi metallurgii.
Pod red. L.A.Bergauza. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry
po gornomu delu, 1959. 126 p. (MIRA 13:2)
(Mining engineering) (Nonferrous metals)

BERGAUZ, Lev Abramovich; SURCVA, V.A., red.izd-va; BOLDYREVA, Z.A.,
tekhn. red.

[Handbook for the workers of ferrous metallurgy enterprises
engaged in open-pit mining] Pamiatka dlia rabochikh, zania-
tykh na otkrytykh gornyykh rabotakh predpriatii chernoi me-
tallurgii. Moskva, Gosgortekhzdat, 1962. 193 p.

(MIRA 16:4)

(Iron and steel workers--Handbooks, manuals, etc.)

BERGAUZ, Lev Abramovich; DERKACH, Leonid Aristarkovich; SUROVA,
V.A., red. izd-va; BOLDYREVA, Z.A., tekhn. red.

[Handbook for workers in the dressing and sintering plants
(workshops) of ferrous metallurgy enterprises] Pamiatka dlia
rabochikh obogatitel'nykh i aglomeratsionnykh fabrik
(tsekhov) predpriatii chernoi metallurgii. Moskva, Gos-
gortekhzdat, 1962. 186 p. (MIRA 16:4)
(Iron and steel workers--Handbooks, manuals, etc.)

BERGAUZ, Lev Abramovich; SHALIMOV, Aleksandr Petrovich; SUROVA, V.A.,
red.izd-va; BOLDYREVA, Z.A., tekhn. red.

[Guide for workers in auxiliary and haulage operations in
ferrous metallurgy] Pamiatka dlia rabochikh vspomogatel'-
nykh i transportnykh tsekhov gornykh predpriatii chernoi
metallurgii. Moskva, Gosgortekhnizdat, 1962. 167 p.

(MIRA 16:10)

(Iron mines and mining) (Wages--Miners)

BERGAUZ, Lev Abramovich; SUROVA, V.A., red.izd-va; BOLDYREVA, Z.A.,
tekhn. red.

[Guide for workers employed in underground operations of fer-
rous metallurgy] Pamiatka dlia rabochikh zaniatykh na pod-
zemnykh rabotakh predpriatii chernoi metallurgii. Moskva,
Gosgortekhzdat, 1962. 203 p. (MIRA 16:10)
(Wages--Miners) (Iron mines and mining)

~~BERGAUZ, Lev Abramovich;~~ POKROVSKAYA, I.M., red.izd-va; LOMILINA, L.N.,
Tekhn. red.

[Practical aid for computing various supplementary wage payments to workers and employees] Prakticheskoe posobie po nashisleniiu raznykh doplat k zarabotnoi plate rabochikh i sluzhashchikh. Moskva, Gosgortekhzdat, 1963. 150 p.

(Wages--Tables, calculations, etc.) (MIRA 16:9)

AP6004729

AUTHCR: 44,55 Berge, Hans (Doctor); 44,55 Jeroschewski, Paul (Graduate chemist)

SOURCE CODE: GE/0065/65/228/03-/0239/0245

ORG: Institute for Inorganic Chemistry, University of Rostock, Rostock (Institut für Anorganische Chemie der Universität)

TITLE: Polarographic studies on metal oxinates in alcohol-water mixtures

SOURCE: Zeitschrift für physikalische Chemie, v. 228, no. 3-4, 1965, 239-245

TOPIC TAGS: polarographic analysis, organocopper compound, quinone, sulfonic acid, alcohol, chemical stability, dissociation constant

ABSTRACT: The stability of copper-8-hydroxyquinoline-5-sulfonic acid in the presence of various monofunctional alcohols was investigated with the aid of polarographic techniques. The stability was found to increase with increasing carbon numbers in the alcohol and/or with increasing alcohol concentration. There was an inverse relation between the degree of instability and dissociation constant of the aqueous alcohol mixture. Orig. art. has: 4 figures, 3 formulas, and 2 tables.

[JPRS]

SUB CODE: 07 / SUBM DATE: 08Jan64 / ORIG REF: 001 / OTH REF: 008

HW
Card 1/1

TIKHOMIROV, Mikhail Ivanovich; BERGAUZ, R.I., redaktor; ZUBRILINA, Z.P.,
tekhnicheskii redaktor.

[Methods establishing production standards at machine-tractor
stations and on collective farms] Metodika tekhnicheskogo normi-
rovaniia v MTS i kolkhozakh; instruktivnoe posobie dlia spetsiali-
stov sel'skogo khoziaistva. Moskva, Gos.izd-vo sel'khoz. lit-ry.
1956. 95 p. (MLRA 9:6)
(Machine-tractor stations--Production standards)(Collective farms-
-Production standards)

GATENBERGER, Petr Fedorovich; BERGAUZ, R.I., redaktor; PEVZNER, V.I.,
tekhnicheskii redaktor

[The state farm on new land in the sixth five-year plan] TSelinnii
sovkhoz v shestoi platiletke. Moskva, Gos. izd-vo sel'khoz. lit-ry.
1956. 132 p. (MLRA 10:3)
(State farms)

KUZNETSOV, A.V.; LAPIDUS, M.A.; LEKOMTSEV, A.S., SKRIMOV, B.F., SHELEST,
P.S. BERGAUZ, R.I., redaktor; GUREVICH, M.M., tekhnicheskii re-
daktor.

[Composite crews on collective farms] Kompleksnye proizvodstvennye
brigady v kolkhozakh. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1956.172 p.
(Collective farms) (MLRA 10:6)

POMERANTSEV, Vladimir Mikhaylovich; BERGAUZ, R.I., redaktor; GURSVICH, M.M.,
tekhnicheskii redaktor

[Collective farms chairman] Predsedatel'. Moskva, Gos.izd-vo
sel'khoz. lit-ry, 1957. 108 p. (MLRA 10:10)
(Collective farms)

15. I.
BENEDIKTOV, Ivan Aleksandrovich; BERGAUZ, R.I., red.; BALLOD, A.I.,
tekhn.red.; GOR'KOVA, Z.D., ~~tekhn:red.~~

[State farms of our land] Sovkhozy nashei strany. Moskva,
Gos.izd-vo sel'khoz.lit-ry, 1957. 78 p. (MIRA 11:1)
(State farms)

BERGAUZ, R.I.
BROZGUL', Miron Matveyevich; BERGAUZ, R.I., red.; TIKHONOVA, Ye.M., red.;
BALLOD, A.I., tekhn. red.

[Organizing production on state farms on virgin lands; based on data from the Dzambul State Farm in Chayan District, South Kazakhstan Province] Organizatsiia proizvodstva v tselinnoy sovkhوزه; na primere sovkhوزه imeni Dzhabbula Chayanovskogo raiona IUsyno-Kazakhstanskoy oblasti. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1957. 134 p. (MIRA 11:1)
(State farms)

BERGAUZ, R.I.
IVANOV, Leonid Ivanovich; NIKIFOROV, Konstantin Dmitriyevich, geroy
sotsialisticheskogo truda; BERGAUZ, R.I., red.; GUREVICH, M.M.,
tekhn.red.

[Production economics and organization on state dairy farms; based
on a study of the Severo-Liubin State Farm in Omsk Province] Ekono-
mika i organizatsiya proizvodstva v molochnom sovkhوزه; na primere
Severo-Liubinskogo sovkhوزه Omskoi oblasti. Moskva, Gos. izd-vo
sel'khoz. lit-ry, 1957. 213 p. (MIRA 11:2)
(Dairying)

KALEYS, Arvic Yakovlevich; BERGAUZ, R.I., red.; DEYEVA, V.M., tekhn. red.

[We will produce 1115 centners of milk and 108 centners of meat;
practices of the "Marupe" Collective Farm, Riga District, Latvia]
Dadim 1115 i 108; iz opyta raboty kolkhoza "Marupe" Rishskogo
raiona Latviskoi SSR. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1958.
39 p. (MIRA 11:8)

1. Predsedatel' kolkhoza "Marupe" Latvyskoy SSR (for Kaleys).
(Latvia--Stock and stockbreeding)

DEK 1958, P.I.
VOLNYANSKIY, Kirill Vissarionovich, geroy Sotsialisticheskogo Truda; KAMINER, Israil' Yakovlevich; BERGAUZ, P.I., red.; SOKOLOVA, N.H., tekhn. red.

[Initiative of farmers of Chadyr-Lunga District; how Moldavian stockbreeders are competing with America] Pochin chadyrlungtsev; rasskaz o tom, kak moldavskie zhivotnovody sorevnuitsia s Amerikoi. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1958. 123 p. (MIRA 11:7)

1. Sekretar' Chadyr-Lungskogo raykoma KP Moldavii (for Volyanskiy). (Chadyr-Lunga District--Stock and stockbreeding)

BERGAUZ, R.I.
FURMAN, L.M., kand.sel'skokhos.nauk, obshchiy red.; BERGAUZ, R.I., red.;
GOR'KOVA, Z.D., tekhn.red.

[Economic efficiency of new methods of cultivating raw crops]
Ekonomicheskaya effektivnost' novykh sposobov vozdeleyvaniya
propashnykh kul'tur. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1958.
244 p. (MIRA 11:12)

(Tillage)

KARAMYSHEV, Viktor Pavlovich; BERGAUZ, R.I., red.; DEYEVA, Y.M., tekhn.
red.; GUREVICH, M.M., tekhn.red.

[Agriculture in the Democratic Republic of Vietnam] Sel'skoe
khoziaistvo Demokraticeskoi Respubliki V'etnam. Moskva, Gos.
izd-vo sel'khoz.lit-ry, 1959. 150 p. (MIRA 13:2)
(Vietnam, North--Agriculture)

BERGAVINOV, Sergei Adamovich.

BERGAVINOV, Sergei Adamovich. Dal'nii Vostok na pod''eme. Khabarovsk, Dal'giz, 1932.
28 p.

DLC: HC487.F3B4

So: LC, Soviet Geography, Part II, 1951/Unclassified.

BERGAVINOV, SERGEI ADAMOVICH.

BERGAVINOV, SERGEI ADAMOVICH.

Arktika i polius zavoevany.

(Moskva) Partizdat, 1937. 62 p.

DLC: G630. R8B44

SO: L.C, Soviet geography, Part I, 1951, Uncl.

MARGULOVA, Tereza Khristoforovna. Prinimali uchastiye: STERMAN, L.S.;
RASSOKHIN, N.G.; DEMENT'YEV, B.A.; BERGEL'SON, B.P.;
MIROPOL'SKIY, Z.L., red.; LARIONOV, G.Ye., tekhn. red.

[Design and calculations of steam generators of atomic electric
power plants] Raschet i proektirovanie parogeneratorov atomnykh
elektrostantsii. Moskva, Gosenergoizdat, 1962. 143 p.

(Boilers)

(MIRA 15:4)

26. 2244

S/089/61/010/004/018/027
B102/B205

AUTHOR: Bergel'son, P. R.

TITLE: Calculation of the passage of fast neutrons through a cylindrical channel in a biological shield

PERIODICAL: Atomnaya energiya, v. 10, no. 4, 1961, 388-389

TEXT: This "Letter to the Editor" offers a theoretical discussion of the calculation of a neutron flux passing through an empty channel in a biological shield, and presents a derivation of several expressions for a correction term which is to be added to the usual formula in order to secure agreement with measurements. The commonly accepted formula for a neutron flux passing through such a channel reads

$$I = \frac{I_0 \pi \delta^2}{2\pi H^2} \left[1 + A \frac{\alpha}{1-\alpha} + B \frac{4\delta\alpha}{H(1-\alpha)} \right] \quad (1)$$

where δ is the radius, H the length of the channel, I_0 the intensity of an isotropic, plane source at the inlet of the channel, I the neutron flux at its outlet, and α the albedo of the channel walls. (1) is obtained on the

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Calculation of the...

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assumption that the neutron energy is not altered by scattering, and that the angular distribution of the scattered neutrons satisfies the condition

$$dI_{\text{refl}}/d\Omega = \alpha I (A + 2B \cos \vartheta) / 2\pi \quad (2).$$

The coefficient A indicates the isotropic distribution, and B the cosinusoidal one ($A+B=1$). α is determined experimentally. For water and concrete $\alpha \approx 0.1$. If $\delta \ll H$ and $\alpha \approx 0.1$, Eq. (1) may be reduced to the simpler form: $I = I_0 \pi \delta^2 / 2\pi H^2$ (3). However, tests have shown that a correction factor, β ($\beta = 10$), must be introduced into Eq. (3) in order to adapt the latter to the facts. The divergence between experiment and theory is ascribed to the fact that not all the neutrons emerging from the channel have been emitted by the source. For example, some of them come from the shield substance and diffuse into the channel. If this is taken into account, one obtains

$$I = \frac{I_0}{2} \left(\frac{\delta}{H} \right)^2 \beta,$$

$$\beta = 1 + \frac{\phi_0}{I_0} \frac{H^2}{2\delta} \int_0^H \frac{e^{-\frac{x}{\lambda}}}{(H-x)^2 + \delta^2} dx. \quad (5)$$

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λ denotes the relaxation length, and the flux distribution of the neutrons diffusing from a plane shield is given by $\Phi = \Phi_0 e^{-x/\lambda}$. For neutrons of energy $E_0 \leq E' \leq E$ one obtains

$$\beta = 1 + \frac{3H^2}{2l_0\delta} \int_0^H \frac{dx}{(H-x)^2 + \delta^2} \left(\int_0^x \frac{q(x, \tau)}{l_{tr}} d\tau \right). \quad (A)$$

and since $H \gg 2\lambda \approx 2\sqrt{\tau}$,

$$\beta = 1 + \frac{3}{2l_0\delta} \int_0^\infty dx \left(\int_0^x \frac{q(x, \tau)}{l_{tr}} d\tau \right). \quad (7)$$

is valid. Here, $q(x, \tau)$ is the slowing-down density, and the solution of the age equation $\partial q / \partial \tau = \Delta q$ reads

$$q(x, \tau) = 2l_0 \left(\frac{e^{-\frac{x^2}{4\tau}}}{\sqrt{\pi\tau}} - \frac{3}{2l_{tr}} e^{\left(x + \frac{3}{2l_{tr}}\tau\right) \frac{3}{2l_{tr}}} \times \right. \\ \left. \times \left[1 - \operatorname{erf} \left(\frac{x}{2\sqrt{\tau}} + \frac{3\sqrt{\tau}}{2l_{tr}} \right) \right] \right). \quad (6)$$

Substituting (6) in (7) and integrating with respect to x and, subsequently,

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with respect to τ one finds

$$\beta = 1 + \frac{4\bar{l}_{tr}}{3\delta} \left\{ e^{\left(\frac{3}{2\bar{l}_{tr}}\right)^2 \tau} \left[1 - \operatorname{erf}\left(\frac{3\sqrt{\tau}}{2\bar{l}_{tr}}\right) \right] + \frac{3}{\bar{l}_{tr}} \sqrt{\frac{\tau}{\pi}} - 1 \right\}. \quad (8)$$

where $\bar{l}_{tr}$ is the transport mean free path of the neutrons averaged over the energy range E_0-E , and τ the age of neutrons of energy E . If

$\tau(E_0, E) \gg 2\bar{l}_{tr}^2(E)$, then $\beta \approx 1 + \frac{4}{\delta} \left(\sqrt{\frac{\tau}{\pi}} - \frac{\bar{l}_{tr}}{3} + \frac{2\bar{l}_{tr}^2}{9\sqrt{\tau\pi}} \right)$. (B)

If the angular distribution corresponds to (2), then

$$\beta = 1 + \frac{4}{\delta} \left(\sqrt{\frac{\tau}{\pi}} - \frac{\bar{l}_{tr}}{3} + \frac{2}{9} \frac{\bar{l}_{tr}^2}{\sqrt{\tau\pi}} \right) \left(A + B \frac{\delta}{H} \right). \quad (C).$$

If the channel is not empty but filled with a material exhibiting similar behavior in diffusion and moderation as the shield substance, one has

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Calculation of the ...

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$\beta \approx 1 + 3\pi/2\delta I_{tr}$. The relation $\beta = \int_E^{\infty} \text{sh}\sqrt{2E_0} e^{-E_0} \beta(E_0) dE_0$ holds for a

source emitting neutrons of the fission spectrum. There are 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: A. Simon, C. Clifford, ORNL-1217 (Rev), March, 1954.

SUBMITTED: November 21, 1960

X

Card 5/5

32535

S/096/62/000/001/004/008

E039/E435

2/1/000

AUTHOR: Bergel'son, B.R., Engineer

TITLE: Calculations on the non-stationary thermophysical and hydrodynamic processes in a boiling reactor

PERIODICAL: Teploenergetika, no.1, 1962, 44-48

TEXT: The generation and removal of heat from the core of a boiling reactor is a complex interconnection of thermophysical and hydrodynamic processes such as: the diffusion of neutrons in a uranium-water lattice; the capture of neutrons by the uranium nucleus with subsequent fission; the generation of heat in the fuel elements; the loss of heat from the surface of the fuel elements; the circulation of a steam-water mixture in the space between the fuel elements; vapourization leading to changes in the physical parameters of the lattice. These processes can be represented by a system of differential equations. In this paper the heterogeneous reactor is considered and the following assumptions made:

1. The core and fuel elements have cylindrical symmetry.
2. The core can be broken down into a series of concentric zones.

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Calculations on the non-stationary ... ³²⁵³⁵S/096/62/000/001/004/008
E039/E435

3. In the core there is a unidirectional motion of the heat transfer fluid. Calculations were made on such a system considering in particular the following aspects: 1. neutron diffusion; 2. flow of heat from the fuel elements; 3. the steam content of the core. A family of equations representing the behaviour of such a system from zero time were obtained and a series of results evaluated for the particular case of a lattice with a water-uranium ratio ~ 2 , for fuel elements of UO_2 and metallic uranium, and a pressure in the system of 100 atm. The physical parameters of the lattice were obtained from the book of A.D.Galanin (Ref.3: Theory of thermal neutron reactors. Atomizdat, 1957). The results, which were evaluated by numerical integration of the family of equations at intervals of 0.01 sec are shown in Fig.1,2 and 3. These results are in qualitative agreement with the experimental curves obtained from the reactors BORAX, SPERT and EBWR, which gives a reasonable verification of the calculated influence of the factors considered in this paper. There are 3 figures and 6 references: 2 Soviet-bloc, 2 Russian translations of non-Soviet-bloc work and 2 non-Soviet-bloc. The two references to English language

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Calculations on the non-stationary...EQ39/E435

publications read as follows: Ref.1: A. Kramer. Water Boiling
Reactors, 1958; Ref.5: L. Alexander. Nuclear Science and Eng.,
v.2, no.1, 1957.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power Engineering Institute)

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X

ACCESSION NR: AT4019037

S/0000/63/000/000/0103/0106

AUTHOR: Bergel'son, B. R.

TITLE: Weakening of fast neutrons in nonhydrogenous decelerators

SOURCE: Voprosy* fiziki zashchity* reaktorov; sbornik statey (Problems in physics of reactor shielding; collection of articles). Moscow, Gosatomizdat, 1963, 103-106

TOPIC TAGS: nuclear reactor, reactor shielding, radiation shielding, neutron, neutron deceleration, nonhydrogenous decelerator, neutron attenuation, biological shielding, age approximation

ABSTRACT: The author describes a method for calculating the weakening of fast neutrons in the layers of a decelerator. The proposed method yields a good degree of accuracy, considering that the full cross sections and scatter cross sections are rather accurately known for decelerator nuclei in an energy interval of 1 - 10 Mev. The problem of determining the attenuation of fast neutrons in materials not containing hydrogen atoms is encountered when computing the radiation shielding of reactor housings and also when computing biological shielding, in which hydrogen-containing materials cannot be used. When computing radiation shielding, one must deal with neutrons having an energy of 0.5 to 1 Mev or more,

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the sources of which are fission spectrum neutrons. The method proposed is based on the solution of the neutron transfer kinetic equation which is written, for plane geometry, in the following form:

$$v \cos \vartheta \frac{\partial n}{\partial x} + \frac{v}{l} n = \int \frac{v'}{l_s} W(p, p') n dp' + Q. \quad (1)$$

where $N(x) = \int n(x, p) dp$ is the number of neutrons at point x ; p is the neutron pulse; l is the length of the free path in the decelerator; l_s is the scattering length in the decelerator; ϑ is the angle between the velocity vector of the neutron v and direction x . The right-hand part of this equation is considered to be a known function and the differential equation is solved, obtaining, instead of the integrodifferential equation (1), the following integral equation:

$$n(x, \cos \vartheta, E) = \frac{\chi(E)}{\cos \vartheta v} e^{-\frac{x}{l(E) \cos \vartheta}} + \int_{x_1}^x \frac{dx'}{\cos \vartheta} e^{-\frac{x-x'}{l(E) \cos \vartheta}} \int \frac{v'}{v} \cdot \frac{1}{l_s(E')} W(p, p') n(x', \cos \vartheta', E') dp'. \quad (2)$$

The problem of the effect of the stream of fast neutrons on the reactor housing was formulated under the following concrete conditions: In the half-space, filled with

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the medium whose role is played by the decelerator, at a distance δ from the boundary with the vacuum, there is a planar source of fission spectrum neutrons. The author notes that the true conditions of the problem differ from those postulated above in that the medium behind the source (the active zone of the reactor) is not a pure decelerator, while the medium before the source (the reflector) does not border on a vacuum. It is shown, however, that these differences are of no significance. Noting that the solution of this problem requires a large expenditure of machine time, the author has considered the possibility and methodology of solving the problem by means of an age approximation. In so doing, he points out that the use of the age approximation is possible only under certain specific conditions (A. D. Galanin. Teoriya yadernykh reaktorov na teplovykh neytronakh. M., Atomizdat, 1955), while in the problem under consideration the energy of the majority of the neutrons of the source is close to, or coincides with, the threshold energy E_1 and the required conditions are poorly satisfied. He calls attention, however, to the fact that the unknown stream is mainly determined by the source neutrons, whose energy E is considerably greater than E_1 . For such decelerators as graphite and heavy water E is about 7 - 8 Mev, since the length of the free path in these decelerators increases perceptibly as the energy of the neutrons increases. If this is kept in mind, the conditions of applicability of the age approximation will be satisfactorily met for the given problem. An equation is derived

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ENCLOSURE: 01

$$I = I_0 \int_{E_1}^{\infty} \sqrt{\frac{2}{\pi s}} \operatorname{sh} \sqrt{2E} e^{-E} \left\{ \frac{\delta}{t(E)} \int_{0}^{\infty} \frac{e^{-t}}{t^s} dt + \right. \\ \left. + \int_{0}^{\infty} \left[\int_{0}^{\infty} \frac{e^{-t}}{t} dt \frac{2}{\sqrt{\pi}} \int_{x/2}^{\infty} e^{-t^2} dt \right] \frac{dx}{t_0(E)} \right\} dE$$

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which represents a double integral for energy E and coordinate x from tabulated functions: the first- and second-order integral exponents and error integral. This expression can be integrated without the use of a computer. A broad mono-energetic parallel stream of neutrons $E_0 > E_1$, passing through a plane layer of shielding, in whose composition there are no hydrogen atoms, into a vacuum, can be described as follows:

$$I = I_1 \left\{ 1 + \operatorname{erf} \left(\frac{\delta}{2\sqrt{\tau}} \right) + e^{-\frac{\delta}{l_r(E_0)} + \frac{\tau}{l_r^2(E_0)}} \left[\operatorname{erf} \left(\frac{\delta}{2\sqrt{\tau}} - \frac{\sqrt{\tau}}{l_r(E_0)} \right) - \operatorname{erf} \left(\frac{\sqrt{\tau}}{l_r(E_0)} \right) \right] \right\} \frac{l_r(E_0)}{l_{lr}(E_0)}.$$

"In conclusion, the author expresses his gratitude to B. L. Ioffe and I. Ye. Kobzarev for their help in carrying out this work." Orig. art. has: 17 formulas.

ASSOCIATION: none

Card 5/6

ACCESSION NR: AT4019037

SUBMITTED: 14Aug63

DATE ACQ: 27Feb64

ENCL: 01

SUB CODE: NP

NO REF SOV: 003

OTHER: 002

Card 6/6

ACCESSION NR: AP4041872

S/0170/64/000/007/0057/0061

AUTHOR: Bergel'son, B. R.; Zorikoyev, G. A.

TITLE: Vigner's energy and safe operating conditions for reactor graphite

SOURCE: Inzhenerno-fizicheskiy zhurnal, no. 7, 1964, 57-61

TOPIC TAGS: Vigner energy, reactor graphite, nuclear reactor

ABSTRACT: A method is suggested for determining a quantitative relationship between the safe operating temperature range for reactor graphite and the integrated neutron flux, taking into account neutron energy spectrum. The designers of graphite-moderated (or reflector) reactors can determine the safe range using the curve and the formulas given in the article. The safe operating temperature of graphite is determined from the standpoint of the internal energy accumulation in graphite under irradiation. Orig. art. has: 2 figures and 11 formulas.

Card 1/2

ACCESSION NR: AP4041872

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki,
Moskva (Institute of Theoretical and Experimental Physics)

SUBMITTED: 11May63

ATD PRESS: 3064

ENCL: 00

SUB CODE: NP

NO REF SOV: 003

OTHER: 010

Card 2/2

ACCESSION NR: AP4039554

Z/0038/64/000/005/0152/0156

AUTHOR: Bergelson, Boris Rafailovic (Bergel'son, B. R.)

TITLE: Radiation shielding of a reactor vessel

SOURCE: Jaderna energije, no. 5, 1964, 152-156

TOPIC TAGS: reactor, reactor vessel, reactor radiation shielding, radiation shielding, graphite radiation shielding, D₂O radiation shielding, neutron, neutron flux, fast neutron flux, radiation damage

ABSTRACT: The article describes the radiation shielding of a reactor's structural components, reactor, vessel in particular. The shielding properties of heavy water and graphite in the role of an operating shield are examined. The calculations are based on neutron slowing-down theory and solving the Plerls equation

Cord 1/2

ACCESSION NR: AP4039554

for a half-space filled with a medium and adjacent to a free space, and with a plane isotopic fission spectrum source. A method for calculating the effects of the neutron energy spectrum is presented. This method permits a comparison of the calculated values for the fast neutron fluxes in the structural components with the corresponding experimental values. Original article has: 1 figure and 16 equations.

ASSOCIATION: Institut teoreticke a experimentalni fyziki, Moscow (Institute of Theoretical and Experimental Physics)

SUBMITTED: 00

DATE ACQ: 12Jun64

ENCL: 00

SUB CODE: NP

NO REF SOV: 006

OTHER: 006

Card 2/2

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I.A. (Moskva)

Remarks on questions of terminology in transistor electro-
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red.; KAUSOV, S.F., *red.*; KONEV, Yu.I., *red.*; KRASILOV, A.V.,
red.; KULIKOVSKIY, A.A., *red.*; NIKOLAYEVSKIY, I.F., *red.*;
STEPANENKO, I.P., *red.*; VOLKOVA, I.M., *red.*; SMUROV, B.V.,
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kovye pribory i ikh primeneniye; sbornik statei. Moskva, Izd-vo
"Sovetskoe radio". No.6. 1960. 333 p. (MIRA 13:12)
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ALEKSANDROVA, A.A., red.; SMUROV, B.V., tekhn. red.

[Receiving and amplifying tubes with increased reliability]
Priemno-usilitel'nye lampy povyshennoi nadezhnosti; spravochnik.
Moskva, Izd-vo "Sovetskoe radio," 1962. 647 p. (MIRA 15:7)
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BERGEL'SON, L., doktor khim. nauk

Alliance between chemistry and stockbreeding. Nauka i zhizn'
30 no.9:2-5 S '63. (MIRA 16:10)